UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/555,641	10/02/2000	Tanweer Ahsan	07982.0002	1378

7590 03/01/2002

Finnegan Henderson Farabow
Garrett & Dunner
1300 I Street NW
Washington, DC 20005

EXAMINER
BLANTON, REBECCA A

ART UNIT	PAPER NUMBER
1762	5

DATE MAILED: 03/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/555,641	Applicant(s) AHSAN ET AL.	
	Examiner Rebecca A. Blanton	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-15* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4-5, 7, and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishii et al. (U.S. 5,498,447).

Nishii et al. disclose a method for coating particulate materials (abstract). In column 2 line 53, the reference specifically discloses coating calcium carbonate. The coating materials, taught by Nishii et al., include fatty acids, such as myristic acid, palmitic acid, stearic acid, and behenic acid (column 3 lines 19-33). Nishii et al. teach that the temperature of the heating gas and the melted coating is between 100-800°C, and the temperature is 1-100°C higher than the melting point of the coating material (column 4 lines 21-47). Additionally, Nishii et al. teach that the particles can be coated in a fluidized bed (column 3 lines 53-61). Nishii et al. do not specifically disclose the amount of unreacted surface treatment on the particulate material after leaving the coating apparatus, however this is a known result effective variable. If the amount of unreacted coating material on the particulate substrate is too high, the cost of coating the particles will increase. It would have been obvious to one of ordinary skill in the art at the time the invention was made to limit the amount of unreacted coating, on the particulate material taught by Nishii et al., in order to limit the cost of coating process.

Referring to claims 1, and 12, the reference teaches that the amount of coating on the particles is determined by the end use of the product, and that the surfaces of the particles are uniformly coated with the thermally melted coating material (column 3 lines 34-52). Nishii et al. also teach that the particles have a uniform coating (column 3 lines 44-45). While Nishii et al. do not specifically disclose that the particles have greater than 90% of the surface coated, it would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the entire particle in order to achieve a uniform coating, as disclosed by Nishii et al.

Referring to claim 3, Nishii et al. teach that the fatty acids that may be used to coat the particles are myristic acid, palmitic acid, stearic acid, and behenic acid (column 3 lines 19-33). These are saturated fatty acids that have 14, 16, 18, and 22 carbon atoms, respectively.

Referring to claim 4, in column 2 lines 49-60, the reference teaches that the particles to be coated include calcium carbonate.

Referring to claim 5, the reference does not disclose a surface area for the particles. However, the surface area is related to the size of the particles, the greater the size of the particles, the greater the surface area. In general, when coating a particle , the particle size is of importance, because the end-use of the particle must be taken in consideration. For example, if the product particles are to be used in paint, they cannot be too large, or they will cause the paint to have a rough surface. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the appropriate size of the particles through routine experimentation, and in the absence of unexpected results, to choose particles of a surface area from 3-13m^2/g for the coating process of Nishii et al.

Referring to claim 7, Nishii et al. teach that the particles can be coated in a fluidized bed, a centrifugal granulator, a high-shear mixer, or a combination of these apparatuses (column 3 lines 53-61).

Referring to claim 9, Nishii et al. disclose that the temperature of the treatment atmosphere is from 100-800°C (column 4 lines 21-47).

Referring to claim 10, in column 3 lines 34-52, Nishii et al. disclose that the amount of wax coated onto the solid particles is determined by the end use of the product and is usually in the range of 0.01-0.6% by weight of the particulate material. Again, while the reference does not specifically disclose the amount of unreacted material on the particles after leaving the coating apparatus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to limit the amount of unreacted coating material in the process taught by Nishii et al., in order to limit the cost of coating the particulate material.

Referring to claim 11, Nishii et al. do not specifically teach the amount of coating material in the treatment atmosphere. However, this is a known result effective variable. If there is not enough coating material in the treatment atmosphere, the particulate material will not be adequately coated with the coating material. If the amount of coating material in the treatment atmosphere is too high, the coating may be too thick on the particulate material or the excess coating material will remain unreacted on the particulate surface, increasing the cost of coating the particles unnecessarily. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the appropriate amount of coating material in the treatment atmosphere, in the absence of unexpected results, and to use the minimum weight of surface treatment needed to coat the particulate material, in the coating process of Nishii et al. to ensure an adequate coating while limiting the amount of unreacted coating material left on the particles after treatment.

Referring to claims 14 and 15, the reference does not disclose a surface area for the particles. However, the surface area is related to the size of the particles, the greater the size of the particles, the greater the surface area. The particle size is a critical parameter and is related to the end use of the product, as described above. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the appropriate size of the particles through routine experimentation, and in the absence of unexpected results, to choose particles of an appropriate surface area for the coating process of Nishii et al.

Additionally, Nishii et al. teach that stearic acid and/or behenic acid may be used to coat the particles (column 3 lines 19-33). The reference teaches that these acids may be used as alone as 100% of the treating solution (column 3 lines 19-33). Nishii et al. does not teach the amount of treatment agent in the treatment atmosphere. However, this is a known result effective variable. If there is not enough coating material in the treatment atmosphere, the particulate material will not be adequately coated with the coating material. If the amount of coating material in the treatment atmosphere is too high, the coating may be too thick on the particulate material or the excess coating material will remain unreacted on the particulate surface, increasing the cost of coating the particles unnecessarily. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the optimum concentration of treatment agent in the treatment atmosphere through routine experimentation, and in the absence of unexpected results, to choose

an amount of treating agent that ensures complete coverage of the particles by the coating solution, while limiting the amount of excess coating material.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al. (U.S. 5.498.447) in view of Kanfer et al. (U.S. 4,786,432).

Nishii et al. teach coating calcium carbonate particles with a fatty acid solution, as described above. However, Nishii et al. do not teach the amount of surface area coated by the fatty acid material. Kanfer et al. teach coating particles, such as calcium carbonate with fatty acid materials, such as myristic acid, stearic acid, palmitic acid, and behenic acid (column 3 lines 27-29 and column 5 lines 1-23). Kanfer et al. disclose that the amount of particle surface covered by the coating material is from 60-100% (column 5 lines 57-61). It would have been obvious to one of ordinary skill in the art at the time the invention was made to look to prior art for an appropriate amount of surface area covered by the coating material, in the absence of Nishii et al. teaching the amount of surface area covered, and to coat from 60-100% of the particle in view of the teaching of Kanfer et al.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishii et al. (U.S. 5,498,447) as applied to claim 1 above, and further in view of Luthi (U.S. 4.480.392).

Nishii et al. do not specifically disclose using an externally heated vessel. However, the reference does teach heating the gas and the coating material, described above. Additionally, it is important for the treatment atmosphere of Nishii et al. to stay warm so that the fatty acid material does not solidify before it can coat the particles.

Luthi discloses a fluidized bed apparatus for drying particles (abstract). The reference teaches that the atmosphere of the fluidized bed warmed by a heating jacket that surrounds the fluidized bed (column 2 lines 12-23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a heating jacket to keep the treatment atmosphere of the fluidized bed warm to keep the fatty acid coating material from solidifying, as taught by Nishii et al., in view of the teaching of Luthi of using a heating jacket to keep the atmosphere inside a fluidized bed warm.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishii et al. (U.S. 5,498,447) as applied to claim 1 above, and further in view of Weber et al. (U.S. 6,156,430).

Nishii et al. disclose coating a calcium carbonate with a fatty acid coating, as described above. However, the reference does not teach measuring the amount of unreacted surface treatment by thermogravimetric analysis. Weber et al. teaches coating powders with fatty acids, such as myristic acid, palmitic acid, and stearic acid, to make them hydrophobic (abstract and column 4 lines 1-19). Weber et al. additionally teaches determining the mass content of organic material in the powder through thermogravimetric analysis (column 5 lines 12-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to measure the amount of unreacted surface treatment on the coated particles through thermogravimetric analysis, taught by Nishii et al., in view of the teaching of Weber et al. of measuring the mass content of organic material in a powder through thermogravimetric analysis.

Allowable Subject Matter

Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The applicant's limitation that the calcium carbonate is treated by wet processing and dried before treatment with the treatment agent distinguishes over the Nishii et al. because the reference does not teach any prior treatment of the particulate material before undergoing treatment. Kanfer et al. teach mixing the particulate material with the base followed by adding an acid into the base/particle solution.

None of the prior art of record teaches or makes obvious the applicant's claimed invention of forming a calcium carbonate particle coated with a fatty acid in a treatment atmosphere after treating the calcium carbonate particle by wet processing and drying the particle before treatment with the treatment agent.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca A. Blanton whose telephone number is 703-605-4295. The examiner can normally be reached on M - F (7:30am - 3:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

rab RAB
February 27, 2002

SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700